

Landsat 8 Surface Reflectance Product Guide: EarthExplorer Version

Version 2.5 – April 2017

The U.S. Geological Survey (USGS) offers on-demand production of Landsat Surface Reflectance (SR) data products for most Landsat 8 (L8) Collection 1 scenes from April 2013 to within one week of acquisition, using the navigational features of EarthExplorer (EE) - (<https://earthexplorer.usgs.gov>) (Login required.)

On EE, you can select the desired date range and the area of interest on the EE “Search Criteria” tab. Additionally, you can enter Landsat Scene identifiers on the “Additional Criteria” tab. On the “Data Sets” tab, expand the “Landsat Archive” section, then the “Collection 1 Higher-Level” section, then select “L8 OLI/TIRS C1 Higher-Level”. After searching, the returned results can be added to the shopping cart for order submission. Order submission and completion emails will provide details about data processing and the location from which to download the data: <https://espa.cr.usgs.gov/ordering/status/>.

User Notes:

1. Please refer to the Landsat 8 Surface Reflectance Code (LaSRC) Product Guide: (https://landsat.usgs.gov/sites/default/files/documents/lasrc_product_guide.pdf) for details about the L8 Surface Reflectance data product, known issues with the output data, and the following caveats:
 - Surface Reflectance cannot be run on Landsat 8 Pre-WRS-2 scenes (before April 11, 2013). More information about Pre-WRS-2 scenes can be found at <https://landsat.usgs.gov/what-landsat-8-olitirs-pre-wrs-2-data>.
 - Although Surface Reflectance can be processed only from the Operational Land Imager (OLI) bands, SR requires combined OLI/Thermal Infrared Sensor (TIRS) product (LC08) input in order to generate the accompanying cloud mask. Therefore, OLI only (LO08) or TIRS only (LT08) data products cannot be calculated to SR.
 - SR is not run for a scene with a solar zenith angle greater than 76°.
 - Users are cautioned against processing data acquired over high latitudes (> 65°) to Surface Reflectance.
 - Efficacy of L8SR correction will be likely reduced in areas where atmospheric correction is affected by adverse conditions:
 - Hyper-arid or snow-covered regions
 - Low sun angle conditions
 - Coastal regions where land area is small relative to adjacent water
 - Areas with extensive cloud contamination